

IN THE CLAIMS:

Please amend the claims as indicated below.

1. (Withdrawn - Currently Amended) A scanning optical apparatus comprising:  
a light source capable of being modulated;  
a deflecting element for deflecting and scanning a beam emitted from said light source;

a scanning optical element for imaging said deflected beam into a spot shape on a scanned surface; and

an optical element for synchronous detection for directing the deflected beam from said deflecting element to a sensor to take the timing of image writing beginning, wherein an optical axis of said optical element for synchronous detection is coincident with a principal ray of the deflected beam from said deflecting element for ~~taking the timing of image writing beginning~~; and

scanning position detecting means for detecting the position of the beam at a point having at least one image height separate from the optical axis of said scanning optical element.

2. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection is an anamorphic lens.

3. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection is made of a plastic material.

4. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said scanning optical element is made of a plastic material.

5. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said optical element for synchronous detection and said scanning optical element are integrally molded by plastic injection molding.

6. (Withdrawn) A scanning optical apparatus according to Claim 1, further comprising a second optical element for converting a light beam into a linear image elongated in a main scanning direction, wherein said optical element for synchronous detection and said second optical element are integrally molded by plastic injection molding.

7. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said scanning optical element is comprised of a refracting optical element and a diffracting optical element.

8. (Withdrawn) A scanning optical apparatus according to Claim 1, wherein said scanning optical element effects correction control of correcting a scanning magnification in conformity with the output of said scanning position detecting means.

9. (Currently Amended) A color image forming apparatus for scanning a beam from at least one scanning optical apparatus on a plurality of image bearing members to thereby form a color image, said scanning optical apparatus comprising:

a light source;

a deflecting element for deflecting and scanning a beam emitted from said light source;

a scanning optical element for imaging said deflected beam into a spot shape on the scanned surfaces of said image bearing members;

an optical element for synchronous detection for directing the deflected beam from said deflecting element to a sensor to take the timing of image writing beginning, wherein an optical axis of said optical element for synchronous detection is coincident with a principal ray of the deflected beam from said deflecting element ~~for taking the timing of image writing beginning~~; and

registration detecting means for detecting a positional deviation in the main scanning direction of a marking of a predetermined shape formed on each of said image bearing members by each scanning optical apparatus is provided at a position corresponding to an image height separate from the optical axis of said scanning optical element.

10. (Previously Presented) A color image forming apparatus according to Claim 9, wherein said registration detecting means is disposed so as to be capable of detecting a plurality of image heights substantially symmetrical with respect to the optical axis of said scanning optical element.

11. (Previously Presented) A color image forming apparatus according to Claim 9, further comprising correcting means for reducing absolute registration deviation in each scanning optical apparatus or registration deviation relative to the scanning optical apparatus providing the reference, in conformity with the output of said registration detecting means.

12. (Previously Presented) A color image forming apparatus according to Claim 9, wherein said registration detecting means is disposed so as to be capable of detecting two image heights substantially symmetrical with respect to the optical axis of said scanning optical element, and effects correction control of correcting the timing of image writing beginning by an amount corresponding to

$$\Delta A = K \times (\Delta 1 + \Delta 2)/2,$$

where  $\Delta 1$  is the amount of registration deviation at a first image height,  $\Delta 2$  is the amount of registration deviation at a second image height, and K is a constant.

13. (Previously Presented) A color image forming apparatus according to Claim 9, wherein said registration detecting means is disposed so as to be capable of

detecting two image heights substantially symmetrical with respect to the optical axis of said scanning optical element, and effects correction control of correcting the scanning magnification by an amount corresponding to

$$\Delta A' = K' \times (\Delta 1 - \Delta 2)/2,$$

where  $\Delta 1$  is the amount of registration deviation at a first image height,  $\Delta 2$  is the amount of registration deviation at a second image height, and  $K'$  is a constant.

14. (Cancelled)

15. (Withdrawn) An image forming apparatus comprising a scanning optical apparatus according to Claim 1, and a printer controller for converting code data inputted from an external apparatus into an image signal and inputting it to said scanning optical apparatus.

16. (Original) A color image forming apparatus comprising a scanning optical apparatus according to Claim 9, and a printer controller for converting code data inputted from an external apparatus into an image signal and inputting it to said scanning optical apparatus.

17. (Cancelled)